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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/037,258 | 10/23/2001 | Ning Lei | D-4840-CIP | 6192 |
| 26572 | 7590 | 04/28/2005 | EXAMINER | |
| INTERNATIONAL TRUCK AND ENGINE CORPORATION 4201 WINFIELD ROAD P.O. BOX 1488 WARRENVILLE, IL 60555 | | | MILLER, CARL STUART | |
| | | ART UNIT | PAPER NUMBER | |
| | | 3747 | | |

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) |
|------------------------------|----------------------------|---------------------|
| | 10/037,258 | LEI, NING |
| | Examiner Carl S. Miller | Art Unit 3747 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 01 October 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-14 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) Claim(s) _____ is/are allowed.
6) Claim(s) 1-14 is/are rejected.
7) Claim(s) _____ is/are objected to.
8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date .

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ .

5) Notice of Informal Patent Application (PTO-152)

6) Other: ____ .

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller in view of Drummond.

In particular, Miller ('345) and Drummond apply as per the Final Rejection of 9/10/04. Miller includes a housing part (78) (or tip) in which the needle valve is shiftable and this part is unitary, fixed and non-shiftable. As per previous rejections, Drummond teaches the use of a control chamber which is always open to a drain but has a high pressure going into it via an inlet control valve. Drummond is applicant's known control chamber and it would have been obvious to use the details of this chamber to control the needle of Miller independently of the control of the booster pump piston because Miller taught such independent control and the Drummond control would have been compatible with Miller.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller and Drummond applied with regard to claims 1-5 above and further in view of Ishida.

Ishida specifically teaches the use of a dual control including main and pilot injections thereby making this an obvious way to control the chamber of Miller as well.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7, 9, 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishida.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida.

Ishida applies as per the final rejection of 9/10/04 in that it would still have been obvious to control the duration between the injections.

Claims 6 and 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida in view of Nishimura.

Ishida and Nishimura apply as per the Final Rejection of 9/10/04.

Applicant's arguments filed October 1, 2004 have been fully considered but they are not persuasive. In particular, applicant's arguments are not totally understood because the housing in which his needle is shiftable appears to no

more unitary, fixed and non-shiftable than that of Miller. Applicants' needle shifts within the element forming chamber (28), which is unitary, fixed and non-shiftable. At the same time, element (78) of Miller is also unitary, fixed and non-shiftable. In his remarks of 10/1/04 applicant does mention that Miller's element 96 is shiftable, but the claim does not require that no part of the needle shift within a shiftable member. Furthermore, even if this limitation were present the prior art (including that shown in applicant's Figure 1) is filled with examples of needle valves that are entirely within non-shiftable, fixed and unitary housings. Finally, Ishida also teaches a housing part (nozzle 16) which meets the new limitations. It is, of course, possible that the applicant means to claim some other feature that he will now clarify as a result of the above comments.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carl Miller whose telephone number is (571) 272-4849. The examiner can normally be reached on MTWTHF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Yuen can be reached on (571) 272-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair>.

direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Carl S. Miller
Primary Examiner

Miller/PJ

04/07/05